

University of Minnesota, Morris
Executive Summary
Senate Committee on Environment and Public Works
April 3, 2008

In the year 2010, the University of Minnesota, Morris will be carbon neutral. We will have accomplished this reduction of green house gas emissions through the on-site generation of nearly all of our electrical and thermal needs, using renewable, sustainable, local resources.

How is this possible?

The University of Minnesota, Morris, one of five campuses of the University of Minnesota system, is a decidedly rural residential public liberal arts college of 1700 students. On a hill overlooking our prairie campus, a 1.65 megawatt wind turbine currently powers 50% of our campus buildings—one million square feet. It is the first turbine of its kind to be constructed at a public university, and it has been in operation since Earth Day, 2005.

Tucked behind our campus Physical Education Center, a small, unobtrusive building is currently under construction. It will house our biomass/gasification plant, scheduled for its first “burn” in May of this year. By burning locally procured non-food-based bio-fuel feed stocks—principally, corn stover and mixed prairie grasses—we will essentially replace our natural gas supply and our natural gas dependency.

In addition to providing a minimum of 80% of campus heating needs, we anticipate that this plant will put approximately half a million dollars back into the local economy annually. Thus, instead of sending local dollars out of state to purchase natural gas, we will deposit these resources into the pockets of local citizens and thereby energize the local rural economy.

But that’s not all.

In the fall of 2008 we will add a steam turbine to this gasification system. Operating on the green steam which is a product of the gasification process, the steam turbine will produce electricity for us on those days when the wind isn’t blowing, and it provides a redundant source of electrical power that goes back onto the grid on those windy days that are the hallmark of the prairie. This same green steam that provides heat for our campus in the winter will connect to an absorption chiller in the summer to cool our buildings.

And there’s more.

In the spring of 2009, we will add a second wind turbine on the hill, which, when it is operational, will provide the remainder of our electrical needs and then some...eventually allowing us to put the excess electricity produced on our campus back onto the grid.

Of course, like many other American colleges and universities, we are taking other steps to reduce our green house gas emissions. Our fleet includes hybrid and zero emission vehicles; we recycle; we have an active local foods initiative; we engage in energy and water conservation efforts; we are designing a new green living and learning residence hall and we are renovating one of the campus buildings that comprises our national historic registry district—both of these to LEED specifications.

I want to repeat again my opening sentence: in the year 2010—just two short years from now--the University of Minnesota, Morris, will be carbon neutral.

How does this fit into our academic mission and our undergraduate liberal arts focus?

Our students have been and are at the forefront of our “green” initiatives. They are active participants in studying the impact of these initiatives in several ways:

- an interdisciplinary environmental studies major;
- a robust undergraduate research program;
- a service learning program; and
- a variety of active internships.

Students work directly with Morris faculty, with researchers at an outreach center of the University of Minnesota’s agricultural school in Morris, and with researchers at the local USDA Agricultural Research Station. They present nationally at conferences; they co-author papers with faculty members; they are our best spokespersons.

How have we managed financially, and has our work been cost-effective? Are we saving money?

Our work has been financed through investments made by the University of Minnesota system, whose Regents in 2004 adopted a system-wide policy related to sustainability. Our work is also supported through investments made by the State of Minnesota. In addition, we have received grants from the US Department of Energy and from the US Department of Agriculture. In December of 2007, we were authorized by the Internal Revenue Service to issue three Clean Renewable Energy Bonds, and we are currently in the process of negotiating an Energy Service Contract (ESCO). We will have achieved our goal through an integrated set of financial tools.

Do these investments save us money? The answer is both “yes” and “it depends”. For example, as long as the price of natural gas stays at or above \$8.00/BTU, (natural gas prices are currently higher than this), we save money by using biomass gasification. And, while CREB’s are “no interest” bonds, they still must be paid back. Thus, while we save money by using wind to generate electricity, that money saved goes toward paying back our debt. We don’t have deep pockets or abundant resources—just imagination, vision, and resolve. Moreover, we are spending close to home; we are re-investing dollars in rural America.

And we have only just begun.

We believe that the work happening on our campus provides a prototype for transforming the future of rural America in a way reminiscent of the Rural Electrification Act of the 1930's. We believe that this on-site renewable electric and thermal generation system provides a model not only for other colleges and universities, for small communities, and for neighborhoods in the United States, but that it also has great relevance for developing countries—truly a model of global significance.

We also have an obligation to use the investments that have been made in our campus infrastructure to train a new workforce for a new economy—green collar jobs; career ladders that provide technical, intellectual and entrepreneurial pathways for the future. And even as I speak we are crafting new partnerships for this purpose that include collaborations with regional economic development organizations and initiatives, as well as area technical colleges.

We believe that when we reach our goal in 2010, we will be the first college in the US to have reduced greenhouse gas emissions in this way, through on-site generation.

BW---before wind—our fossil fuel footprint was 12,000 tons of carbon dioxide per year. By 2010, we will have reduced that footprint to 0. (Please refer to the bar graph included in your packet). We will have achieved carbon neutrality.

University of Minnesota, Morris students are out-spoken and they are action-oriented. In the best tradition of liberal learning, we encourage students and faculty to ask and answer the “big questions” of our time. Our work in reducing greenhouse gas emissions speaks directly to these characteristics and qualities. At the University of Minnesota, Morris we provide a liberal arts living and learning environment that is –literally-- both renewable and sustainable.